

EXHIBIT A

Mill Creek Acquisition Culvert Repair and Sediment Reduction Project STATEMENT OF WORK

Introduction: The Smith River Alliance, here to for identified as Grantee, is seeking a grant from the California Coastal Conservancy to replace and/or decommission under sized or failing primary road culverts.

Under direction of the California Department of Parks and Recreation and the Department of Fish and Game, and under the following conditions and terms, the Grantee will:

1. Replace and improve 16 stream crossings/culverts which pose a risk of failure in the immediate future. The objective of this project is to protect and improve coho and Chinook salmon, and steelhead and cutthroat trout spawning and rearing habitat by reducing the potential of approximately 25,380 cubic meters of road fill from entering the Mill Creek and Rock Creek drainages. The project will also improve fish passage at an identified location by replacing a culvert with a bridge.
2. The Grantee will conduct work in Mill Creek and Rock Creek watersheds tributaries to the Smith River in Del Norte County. All work sites are located within the USGS 7.5' Child's Hill, CA and Hiouchi, CA quadrangles. The individual work site locations are identified in Exhibit C, Project Location Map, which is attached and made part of this agreement by this reference.
3. The Grantee will replace old rusting, crushed, broken, undersized, or improperly installed culverts at 14 locations. At two locations the crossings will be decommissioned and armored. All the sixteen sites are identified in the Coastal Conservancy Grant Road Repair Sites (Exhibit B), pages one through three, and made part of this document by this reference. The Grantee will replace crossings with new rock armored crossings, culverts and bridges properly sized to pass flood flows and woody debris along with providing fish passage. The approaches to the crossing will be re-engineered to improve road drainage, and critical dips will be installed where necessary to prevent stream diversion. In addition, several short sections of road will be decommissioned and associated crossings removed in locations where they are causing an immediate threat to the adjacent road network, have high potential to fail, and are not needed as part of the administrative road system.
4. The Grantee will provide fish passage by removing an existing culvert at project site (#8) and replacing it with a structurally engineered bridge by performing the following tasks:
 - Engineered plans for the bridge installation to be submitted to the CDFG engineer prior to project commencement. The plans will include details of channel construction, scaled drawings of the bridge, and specific details on water diversion and fish relocation.

- Implement plans for fish removal, water diversion and traffic detour.
 - Remove existing culvert and all associated fill.
 - Excavate channel to original width, depth and slope to expose natural channel morphology and armor. Side slopes will be treated to match original contours above and below the road. Exposed stream banks will be armored with boulders and rock riprap.
 - Install roughened channel if designed, to maintain grade control and control sediment release.
 - Install a 80 foot long pre-cast cement conspan bridge with vehicular and pedestrian guard rails, set on pre-cast concrete footings
 - Reestablish proper road grade to the bridge, install hardened road base, hardened road drains, and install final road service.
 - Treat disturbed and /or erodible stream banks at the project site with boulders and rock riprap. Any additional disturbed soils will be seeded, mulched and planted with native tree and shrubs.
5. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured.
6. The Grantee shall notify appropriate DFG staff a minimum of five working days before project sites are de-watered and the stream flow diverted. The notification will provide a reasonable time for Department personnel to supervise the implementation of the water diversion plans at the wetted stream crossings and oversee the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:
- Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
 - The Grantee shall minimize the amount of wetted stream channel dewatered at the project site to the fullest extent possible.
 - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act, June 2000.
 - The Grantee will provide fish relocation data to the appropriate DFG Fisheries Biologist on a form provided by the Department of Fish and Game.
 - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.
7. The bridge design and other wetted culvert installations will meet flow clearance capacity required for a 100-year flood event as identified by specifications determined by NOAA Fisheries and the California Department of Fish and Game for adult and juvenile salmonid fish passage.

8. The project will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and DFG criteria for fish passage as described in the Third Edition, Volume II, Part IX, February 2003, of the *California Salmonid Stream Habitat Restoration Manual*. Final bridge and wetted culvert designs shall be visually reviewed and authorized by NOAA Fisheries (or DFG) engineers prior to commencement of work.
9. The Grantee will assist DFG staff in establishing and recording pre and post project data; to include site photo points, written navigation to each project area and site, GPS location, distance between sites, and description of treatment types. All pre and post project identification, and assessment will follow established DFG monitoring protocol and will be reviewed with the Grantee before project work begins.
10. All road upgrading or decommissioning will be done in accordance with techniques described in the Handbook for Forest and Ranch Roads, (PWA, 1994c.) and the *California Salmonid Stream Habitat Restoration Manual*, Third Edition, Volume II, Part X, January 2004. The Department of Fish and Game does not endorse nor will it prohibit full slope re-contour treatment at road decommissioning sites solely done for aesthetic purposes.
11. Working in flowing streams is restricted to June 15 through October 31. Actual project start and end dates, within this time frame, are at the discretion of the California Department of Parks and Recreation and the Department of Fish and Game. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to ensure the best chance of survival of the seedlings. The standard for success is 80% survival of plantings, after a period of three years.
12. Upon completion of the project, the Grantee shall submit two hard copies of a final written report and one electronic, Microsoft Word compatible, copy on 3.5 inch floppy disk(s) or CD. If the project is not completed in the current year, the Grantee will submit a summary of the completed portion no later than December 1 and again each year until completed. The report shall include, but not necessarily be limited to the following information:
 - Grant number
 - Project name
 - Geographic area (e.g., watershed name)
 - Location of work – show project location using U.S.G.S. 7.5 minute topographical map or appropriately scaled topographical map
 - Geospatial reference/location (lat/long is preferred – defined as point, line, or polygon)
 - Project start and end dates and the number of person hours expended
 - Total of each fund source, by line item, expended to complete the project, breaking down Contract dollars, by line item, and any other funding, including type of match (cash or in-kind service)
 - Expected benefits to anadromous salmonids from the project

- Labeled before and after photographs of any restoration activities and techniques
- Specific project access using public and private roads and trails, with landowner name and address
- Complete as built project description
- Report measurable metrics for the project by responding to the restoration project metrics listed below.

Habitat Protection and Restoration Projects– Reporting Metrics (HU, HB) (Report N/A to those that do not apply)

Habitat Projects: (all)

- Identify the watershed/sub-basin plan or assessment in which the project is identified as a priority.
- Name the priority habitat limiting factors identified in that plan that are addressed by the project
- Type of monitoring included in the project
 - Design spec achieved
 - Fish movement/abundance
- Number of stream miles treated/affected by the project within the project boundaries.

Upland Habitat Projects (HU)

- Number of actions (road decommission / upgrade)
- Number of acres treated.
- Number of miles of road decommissioned or upgraded (e.g., treated).
- Number of cubic yards of sediment saved from entering the stream.

Fish Passage Improvement Projects (HB):

- Number of blockages removed or made passable.
- Number of miles made accessible to salmonids.

Water Quality Projects

- Water quality limitations addressed by the project (e.g. 303(d), TMDL)

13. The Grantee will acknowledge the participation of the Department of Fish Game, Fisheries Restoration Program on any signs, flyers, or other types of written communication or notice to advertise or explain the Mill Creek Acquisition Culvert Repair and Sediment Reduction Project.

Exhibit B

1 of 3

Site Number	Road (Facility # 103-C-5-05-1-001)	Address	Culvert Diameter (feet)	Culvert Length (feet)	Deliverable Fill Volume (cubic meters)	Site Notes	Sediment Transport Potential (High, Medium, Low)	Plugging Potential (High, Medium, Low)	Repair Priority (High, Medium, Low)	Failure Potential (9=Highest, 1=lowest)	Prescription (All sites include removal of existing culvert)	Cost
1	Flashlite	1.86	1.00	60	1,209	100% plugged inlet 2005, diverted flow runs down road to a waterbar, major slide occurred (approx. 2,000 cy into Mill Creek above campground). Past evidence of other historical debris flows and mass wasting.	M	H	H	9	install 3 x 60 culvert & 20 CY RSP. Put culvert back into channel	\$12,616
2	Airport Spur	0.56	4.00	40	2,475	A 2100 m3 upstream sediment plug exists. Stream has abandoned roads on both left & right banks. Small crossing on adj. rd. has crossing with a 2 ft. dia. x 40 ft. pipe has potential to cause failure of this site.	M	M	H	8	Retain the 4-ft culvert and install headwall. Remove adj 2 ft. pipe.	\$11,094
3	Childs Hill Road	5.97	2.00	60	2,209	High diversion potential, upstream sediment plug, stream undercutting, fill washed out, culvert undersized, shotgun, drains on fill. Failure could reach Mill Creek. Rust line 2/3 of pipe, flow goes subsurface thru Xing at outlet.	M	H	H	8	install 4 x 80 ft culvert	\$21,570
4	Dry Lake	3.11	3.00	80	732	High plug potential at inlet due to an active slide and woody debris accumulation. Inlet was 100% plugged in 2003, adjacent stream instability exists, failure would deliver large volume of material to Rock Creek.	L	H	H	8	Active slide area - Remove Road at crossing to end	\$75,000
5	East Side	0.74	3.00	100	5,520	High potential at inlet due to woody debris in drainage, also head cutting at outlet (outlet has deep fill load, Mill Creek directly below. Culvert crushed at end, Water passing below culvert. Gullying over top from road flooding. The entire crossing volume could enter Mill Creek	H	H	H	8	install 6 x 100 ft culvert & 10 CY RSP	\$44,730
6	Hamilton Road	1.58	1.50	100	2,376	Upstream sediment plug, adjacent slope instability, water flows around culvert, undersized, rusty, holes, shotgun, headcutting, culvert deep under road.	M	H	H	8	install 3 x 100 ft culvert	\$19,836

Exhibit B

2 of 3

Site Number	Road (Facility # 103-C-5-05-1-001)	Address	Culvert Diameter (feet)	Culvert Length (feet)	Deliverable Fill Volume (cubic meters)	Site Notes	Sediment Transport Potential (High, Medium, Low)	Plugging Potential (High, Medium, Low)	Repair Priority (High, Medium, Low)	Failure Potential (9=Highest, 1=lowest)	Prescription (All sites include removal of existing culvert)	Cost
7	Hamilton Road	3.64	2.00	200	660	High potential inlet sediment build-up (30% inlet crushed, culvert rusted out, water running thru bottom of pipe before 60 ft DD), extra long culvert angled across road.	M	H	H	8	install 3 x 140 ft culvert & 3 x 60 ft downdrain	\$17,792
8	Hamilton Road	5.76	4.00	60	1,164	Stream is undercutting at both upstream and downstream ends of crossing, upstream sediment plug, diversion potential, culvert undersized, rusty with holes, separation, plugged at outlet, shotguns onto fill) This site also represents a fish passage barrier.	H	H	H	8	install 80 ft cement conspan bridge, 230 tons RSP, 90 CY base rock.	\$324,045
9	Blowdown	1.07	1.50	60	1,980	Could not locate end of outlet, water exiting some how (upstream sediment plug, road bench located upstream from Xing, fill failure, undercutting culvert undersized, rusty, outlet plugged, drains on fill) rust line 50% of pipe, allot of sediment & large woody debris above culvert, recent (2004)20'x30'x15' landslide below at culvert outlet.	M	H	H	7	install 2.5 x 80 ft culvert & 10 CY RSP	\$15,626
10	Bummer Lake Road	1.53	1.00	30	713	Stream bank eroding, upstream sediment plug, culvert undersized, shotguns onto armored fill, diversion potential down road onto fill slope, high culvert plugging potential resulting in debris flow below the road.	M	H	H	7	install 2 x 40 ft culvert	\$5,818
11	Childs Hill Road	4.07	1.00	60	933	High plugging potential at culvert inlet, catches a lot of debris. Diversion potential down road, adjacent slope instability and upstream sediment plug.	L	M	H	7	install 1.5 x 60 ft culvert	\$7,066
12	Childs Hill Road	6.11	1.50	40 & 40	1,015	Diversion potential down the road, upstream sediment plug, culvert undersized, outlet plugged in 03. Culvert drains onto fill, abandoned culvert next to this one) A very large sediment plug is directly in front of culvert inlet, excess debris upstream, older adjacent pipe is crushed at inlet.	M	H	H	7	install 2 x 50 ft culvert	\$8,176

Exhibit B

3 of 3

Site Number	Road (Facility # 103-C-5-05-1-001)	Address	Culvert Diameter (feet)	Culvert Length (feet)	Deliverable Fill Volume (cubic meters)	Site Notes	Sediment Transport Potential (High, Medium, Low)	Plugging Potential (High, Medium, Low)	Repair Priority (High, Medium, Low)	Failure Potential (9=Highest, 1=lowest)	Prescription (All sites include removal of existing culvert)	Cost
13	Childs Hill Road	12.23	2.50	60	1,502	Diversion potential down the road, gully exist down side road, abandoned road with 2nd stacked Xing upstream has a big Humboldt Xing, upstream sediment plug, culvert undersized, rusty, drains on fill) outlet has undermined the fill slope, slide related activity at site, sediment wedge at culvert, rust line 1/2 way.	H	M	H	7	install 3 x 80 ft culvert	\$13,428
14	Childs Hill Road	12.82	2.50	80	2,129	Diversion potential down road, upstream sediment plug, washed out fill, culvert undersized and drains on fill. Culvert offset from channel, drains 1/2 way down fill slope, slumping below culvert, fill is rock material, road slumping at curve, old road drainage above, culvert has rust line 1/2 way up pipe.	M	H	H	7	install 3 x 80 ft culvert	\$15,870
15	Childs Hill Road	20.35	1.50	20		High potential of culvert plugging, outlet drains onto fill slope (spring pooling at culvert inlet pools, culvert outlet completely gone with slide at 20.33, 2003 survey speaks of gully and spring only, but this site is definitely a mass wasting landslide that is fairly recent) high potential for head cutting into road edge.	M	H	H	7	outslope road from 20.00 to 20.42 (1377 ft) & install 67 CY armored drain swale & 30 CY RSP	\$17,794
16	Hamilton Road	1.04	1.00	60	762	Diversion potential down road, fill slope failure, culvert head cutting at outlet and into road bed, culvert is undersized, rusty, torn, separated and shotguns onto fill.	M	H	H	7	install 2 x 80 ft culvert & 40 CY RSP	\$12,952
Total Volume					25,379	Cubic Meters	Repair Cost					\$623,413
							GIS Support					\$5,000
							Admin. Overhead 10% non contract cost					\$500
							Total Project Cost					\$628,913

EXHIBIT A
East Fork Mill Creek Instream Habitat Improvement Project
STATEMENT OF WORK

Under direction of the California Department of Parks and Recreation and the Department of Fish and Game, and under the following conditions and terms, the Grantee will:

1. Increase instream habitat diversity by installing large woody debris which will increase pool size and depth and improve spawning and rearing habitat, for coho and Chinook salmon, steelhead and coastal cutthroat trout in selected sections of the East Fork Mill Creek, tributary to the Smith River. The objective is to create or enhance 48 selected sites, double the habitat shelter ratings at each site and increase the residual depth of the pools within the targeted stream reach by an average of 16 to 18 inches.
2. The Grantee will conduct work on the East Fork Mill Creek from the confluence with West Fork Mill Creek upstream to the confluence with the southeast tributary to East Fork Mill Creek. The project is located in Township 15 North, Range 1 East, Sections 2, 3, 4, 5 and Township 16 North, Range 1 East Section 32, of Child's Hill, 7.5 Minute U.S.G.S. Quadrangle. The downstream end of project site is located at latitude 41° 44' 38.81" North and longitude 124° 04' 0.65" West. The upstream end is 41° 43' 20.51" North and longitude 124° 03' 6.28" West.
3. The Grantee will construct 48 complex, log/root wad instream structures along an approximately 3.2 mile section of the East Fork Mill Creek. Approximately 100 logs will be incorporated into the structures. Material selection, placement and anchoring methods will be approved by the California Department of Parks and Recreation and the California Department of Fish and Game for each instream structure prior to installation. All structures will be built by the California Conservation Corps (CCC) members utilizing hand tools. An excavator may be used to transport logs and root wads across vegetated riparian terraces and assist the CCC crews with placement. The excavator will not enter the stream, excavate in the stream or operate on exposed stream banks.
4. Working in flowing streams is restricted to June 15 through October 31. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Parks and Recreation and the Department of Fish and Game.
5. The Grantee and subcontractors will carry out all necessary measures to control any excess turbidity during installation of instream structures to include but not limited to: silt fence placement, installation of floating booms and/or actual work stoppage.

6. Any disturbed or exposed soils or damaged riparian vegetation will be rehabilitated and/or replanted utilizing native mulch and native seedlings. Any measures necessary to reduce direct sediment transport to the stream due to the movement of logs and root wads across riparian terraces will be approved by California Department of Parks and Recreation. The planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to ensure the best chance of survival for the seedlings. Mulching and seeding can occur during any time period after the site is complete. The standard for success is 80% survival of planted seedling and/or 80% of ground coverage for mulch/seeding after a period of three years.
7. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*, Flosi et al., Third Edition, including Volume II, and Part XI, January 2004.
8. Baseline habitat monitoring and photographic documentation will be performed prior to, during and following structure implementation. This information will be provided to the appropriate Grant Manager by December 31 of each year.
9. Upon completion of the project, the Grantee shall submit two hard copies of a final written report and one electronic, *Microsoft Word* compatible, copy on 3.5 inch floppy disk(s) or CD. If the project is not completed in the current year, the Grantee will submit a summary of the completed portion no later than December 1 and again each year until completed. The report shall include, but not necessarily be limited to the following information:
 - Grant number
 - Project name
 - Geographic area (e.g., watershed name)
 - Location of work – show project location using U.S.G.S. 7.5 minute topographical map or appropriately scaled topographical map
 - Geospatial reference/location (lat/long is preferred – defined as point, line, or polygon)
 - Project start and end dates and the number of person hours expended
 - Total of each fund source, by line item, expended to complete the project, breaking down Grant dollars, by line item, and any other funding, including type of match (cash or in-kind service)
 - Expected benefits to anadromous salmonids from the project
 - Labeled before and after photographs of any restoration activities and techniques
 - Specific project access using public and private roads and trails, with landowner name and address
 - Complete as built project description
 - Report measurable metrics for the project by responding to the restoration project metrics listed below.

Habitat Protection and Restoration Projects – Reporting Metrics (HI, HR, HS) (Report N/A to those that do not apply)

Habitat Projects: (all)

- Identify the watershed/sub basin plan or assessment in which the project is identified as a priority.
- Name the priority habitat limiting factors identified in that plan that are addressed by the project.
- Type of monitoring included in this project
 - Design Spec achieved
 - Fish movement/abundance
- Number of stream miles treated/affected by the project within the project boundaries.

Instream Habitat Projects (HI)

- Description of instream treatments used, including site locations referenced to an established landmark, number of treatment sites, and any modifications to site/treatment design.

Riparian Habitat Projects (HR)

- Number of miles treated (e.g., fenced)
- Number of acres treated (e.g., planted)
- Number of acres and type of invasive species controlled
- Species and size of trees planted
- Number of trees/density of plantings
- Feet of stream bank stabilized and treatments used.

California Department of Fish and Game

Natural Diversity Database

Selected Elements by Common Name

Possible Species within the Childs Hill and Surrounding Quads for:
East Branch Mill Creek Instream Habitat Improvement Project
Del Norte County

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS/R-E-D
1 Butte County morning-glory <i>Calystegia atriplicifolia</i> ssp. <i>buttensis</i>	PDCON04012			G5T3	S3.2	1B/2-2-3
2 Chace juga <i>Juga chacei</i>	IMGASK4180			G1	S1	
3 Coast Range lomatium <i>Lomatium martindalei</i>	PDAP1B140			G5	S2.3	2/2-1-1
4 Darlingtonia Seep	CTT51120CA			G4	S3.2	
5 Del Norte buckwheat <i>Eriogonum nudum</i> var. <i>paralinum</i>	PDPGN08498			G5T2T4	S2?	2/2-2-1
6 Del Norte pyrocoma <i>Pyrocoma racemosa</i> var. <i>congesta</i>	PDASTDT0F4			G5T4	S2.3	2/2-1-1
7 Del Norte salamander <i>Plethodon elongatus</i>	AAAAD12050			G4	S3	SC
8 Henderson's fawn lily <i>Erythronium hendersonii</i>	PMLIL0U070			G4	S1.3	2/3-1-1
9 Howell's fawn lily <i>Erythronium howellii</i>	PMLIL0U080			G3G4	S2.3	1B/2-1-2
10 Howell's sandwort <i>Minuartia howellii</i>	PDCAR0G0F0			G4	S3.2	1B/2-1-2
11 Humboldt marten <i>Martes americana humboldtensis</i>	AMAJF01012			G5T2T3	S2S3	SC
12 Indian-pipe <i>Monotropa uniflora</i>	PDMON03030			G5	S2S3	2/2-2-1
13 Koehler's stipitate rock cress <i>Arabis koehleri</i> var. <i>stipitata</i>	PDBRA060Z2			G3T3	S1.3	1B/3-1-2
14 Lyngbye's sedge <i>Carex lyngbyei</i>	PMCYP037Y0			G5	S2.2	2/2-2-1
15 Mardon skipper <i>Polites mardon</i>	IILEP66030	Candidate		G2G3	S1	
16 McDonald's rock cress <i>Arabis macdonaldiana</i>	PDBRA06150	Endangered	Endangered	G2	S2.1	1B/2-3-2
17 Mendocino gentian <i>Gentiana setigera</i>	PDGEN060S0			G2	S1.2	1B/3-2-2
18 Nuttall's saxifrage <i>Saxifraga nuttallii</i>	PDSAX0U160			G4?	S1.1	2/3-3-1
19 Oregon coast Indian paintbrush <i>Castilleja affinis</i> ssp. <i>litoralis</i>	PDSCR0D1V0			G4G5T4	S2.2	2/2-2-1
20 Pacific fisher <i>Martes pennanti</i> (<i>pacifica</i>) <i>DPS</i>	AMAJF01021	Candidate		G5	S2S3	SC
21 Pacific gilia <i>Gilia capitata</i> ssp. <i>pacifica</i>	PDPLM040B6			G5T3T4	S2.2?	1B/2-2-2
22 Siskiyou Indian paintbrush <i>Castilleja miniata</i> ssp. <i>elata</i>	PDSCR0D0T0			G5T3	S2.2	2/2-2-1
23 Sonoma tree vole <i>Arborimus pomo</i>	AMAFF10030			G3	S3	SC

California Department of Fish and Game

Natural Diversity Database

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Possible Species within the Childs Hill and Surrounding Quads for:

East Branch Mill Creek Instream Habitat Improvement Project

Del Norte County

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS/R-E-D
24 Thurber's reed grass <i>Calamagrostis crassiglumis</i>	PMPOA17070			G3Q	S1.2	2/3-3-1
25 Tracy's romanzoffia <i>Romanzoffia tracyi</i>	PDHYD0E030			G4	S1.3	2/3-1-1
26 Waldo buckwheat <i>Eriogonum pendulum</i>	PDPGN084Q0			G4	S2.2	2/3-2-1
27 Wolf's evening-primrose <i>Oenothera wolfii</i>	PDONA0C1K0			G1	S1.1	1B/3-3-2
28 arctic starflower <i>Trientalis arctica</i>	PDPRI0A030			G5	S1.2	2/3-2-1
29 black crowberry <i>Empetrum nigrum ssp. hermaphroditum</i>	PDEMP03021			G5T5	S2?	2/3-2-1
30 black swift <i>Cypseloides niger</i>	ABNUA01010			G4	S2	SC
31 coast cutthroat trout <i>Oncorhynchus clarkii clarkii</i>	AFCHA0208A			G4T4	S3	SC
32 coast fawn lily <i>Erythronium revolutum</i>	PMLIL0U0F0			G4	S2.2	2/2-2-1
33 coastal triquetrella <i>Triquetrella californica</i>	NBMUS7S010			G1	S1.2	1B/3-2-2
34 double-crested cormorant <i>Phalacrocorax auritus</i>	ABNFD01020			G5	S3	SC
35 fibrous pondweed <i>Potamogeton foliosus var. fibrillosus</i>	PMPOT030B1			G5T2T4	S1S2	2/3-1-1
36 flaccid sedge <i>Carex leptalea</i>	PMCYP037E0			G5	S2?	2/3-2-1
37 foothill yellow-legged frog <i>Rana boylei</i>	AAABH01050			G3	S2S3	SC
38 fork-tailed storm-petrel <i>Oceanodroma furcata</i>	ABNDC04010			G5	S1	SC
39 great blue heron <i>Ardea herodias</i>	ABNGA04010			G5	S4	
40 great burnet <i>Sanguisorba officinalis</i>	PDR0S1L060			G5?	S2.2	2/2-2-1
41 green sedge <i>Carex viridula var. viridula</i>	PMCYP03EM3			G5T5	S1.3	2/3-1-1
42 horned butterwort <i>Pinguicula vulgaris ssp. macroceras</i>	PDLNT01041			G5T4Q	S3.2	2/2-2-1
43 lakeshore sedge <i>Carex lenticularis var. limnophila</i>	PMCYP037A7			G5T5	S1S2.2	2/3-2-1
44 leafy-stemmed mitrewort <i>Mitella caulescens</i>	PDSAX0N020			G5	S2.3	2/2-1-1
45 little-leaved huckleberry <i>Vaccinium scoparium</i>	PDERI180Y0			G5	S2.2?	2/2-2-1

California Department of Fish and Game

Natural Diversity Database

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Possible Species within the Childs Hill and Surrounding Quads for:

East Branch Mill Creek Instream Habitat Improvement Project

Del Norte County

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS/R-E-D
46 long-beard lichen <i>Usnea longissima</i>	NLLEC5P420			G4	S4.2	
47 maidenhair spleenwort <i>Asplenium trichomanes</i> ssp. <i>trichomanes</i>	PPASP021K2			G5T5	S2.3	2/3-1-1
48 maple-leaved checkerbloom <i>Sidalcea malachroides</i>	PDMAL110E0			G3	S3.2	1B/2-2-2
49 marsh pea <i>Lathyrus palustris</i>	PDFAB250P0			G5	S2S3	2/2-2-1
50 minute pocket-moss <i>Fissidens pauperculus</i>	NBMUS2W0U0			G3?	S1.2	1B/2-2-3
51 naked flag-moss <i>Discelium nudum</i>	NBMUS2E010			G3G4	S1.2	2/3-2-1
52 northern red-legged frog <i>Rana aurora aurora</i>	AAABH01021			G4T4	S2?	SC
53 northern spotted owl <i>Strix occidentalis caurina</i>	ABNSB12011	Threatened		G3T3	S2S3	
54 opposite-leaved lewisia <i>Lewisia oppositifolia</i>	PDPOR040B0			G4	S2.2	2/2-2-1
55 osprey <i>Pandion haliaetus</i>	ABNKC01010			G5	S3	SC
56 pink sand-verbena <i>Abronia umbellata</i> ssp. <i>breviflora</i>	PDNYC010N2			G4G5T2	S2.1	1B/2-3-2
57 sand pea <i>Lathyrus japonicus</i>	PDFAB250C0			G5	S1.1	2/3-3-1
58 seacoast ragwort <i>Senecio bolanderi</i> var. <i>bolanderi</i>	PDAST8H0H1			G4T4	S1.2	2/3-2-1
59 serpentine catchfly <i>Silene serpentinicola</i>	PDCAR0U2B0			G2	S2.2	1B/2-2-3
60 serpentine sedge <i>Carex serpenticola</i>	PMCYP03KM0			G3?	S2.3	2/2-1-2
61 southern torrent salamander <i>Rhyacotriton variegatus</i>	AAAAJ01020			G3G4	S2S3	SC
62 summer-run steelhead trout <i>Oncorhynchus mykiss irideus</i>	AFCHA0213B			G5T4Q	S2	SC
63 western bog violet <i>Viola primulifolia</i> ssp. <i>occidentalis</i>	PDVIO040Y2			G5T2	S2.2	1B/2-2-2
64 western lily <i>Lilium occidentale</i>	PMLIL1A0G0	Endangered	Endangered	G1	S1.2	1B/3-3-2
65 western tailed frog <i>Ascaphus truei</i>	AAABA01010			G4	S2S3	SC
66 yellow-tubered toothwort <i>Cardamine nuttallii</i> var. <i>gemmata</i>	PDBRA0K0R3			G5T3	S2.2	1B/3-1-2

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Del Norte County

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS/R-E-D
1 Butte County morning-glory <i>Calystegia atriplicifolia</i> ssp. <i>buttensis</i>	PDCON04012			G5T3	S3.2	1B/2-2-3
2 Chace juga <i>Juga chacei</i>	IMGASK4180			G1	S1	
3 Coast Range lomatium <i>Lomatium martindalei</i>	PDAP1B140			G5	S2.3	2/2-1-1
4 Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
5 Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
6 Darlingtonia Seep	CTT51120CA			G4	S3.2	
7 Del Norte buckwheat <i>Eriogonum nudum</i> var. <i>paralinum</i>	PDPGN08498			G5T2T4	S2?	2/2-2-1
8 Del Norte pyrrocoma <i>Pyrrocoma racemosa</i> var. <i>congesta</i>	PDASTDT0F4			G5T4	S2.3	2/2-1-1
9 Del Norte salamander <i>Plethodon elongatus</i>	AAAAD12050			G4	S3	SC
10 Fort Dick limnephilus caddisfly <i>Limnephilus atercus</i>	IITRI15020			G4	S1	
11 Henderson's fawn lily <i>Erythronium hendersonii</i>	PMLIL0U070			G4	S1.3	2/3-1-1
12 Hippolyta fritillary <i>Speyeria zerene hippolyta</i>	IILEPJ6087	Threatened		G5T1	S1	
13 Howell's fawn lily <i>Erythronium howellii</i>	PMLIL0U080			G3G4	S2.3	1B/2-1-2
14 Howell's sandwort <i>Minuartia howellii</i>	PDCAR0G0F0			G4	S3.2	1B/2-1-2
15 Humboldt marten <i>Martes americana humboldtensis</i>	AMAJF01012			G5T2T3	S2S3	SC
16 Indian-pipe <i>Monotropa uniflora</i>	PDMON03030			G5	S2S3	2/2-2-1
17 Koehler's stipitate rock cress <i>Arabis koehleri</i> var. <i>stipitata</i>	PDBRA060Z2			G3T3	S1.3	1B/3-1-2
18 Langsdorf's violet <i>Viola langsdorfii</i>	PDVIO04100			G4	S1.1	2/3-3-1
19 Lyngbye's sedge <i>Carex lyngbyei</i>	PMCYP037Y0			G5	S2.2	2/2-2-1
20 Mardon skipper <i>Polites mardon</i>	IILEP66030	Candidate		G2G3	S1	
21 Mcdonald's rock cress <i>Arabis macdonaldiana</i>	PDBRA06150	Endangered	Endangered	G2	S2.1	1B/2-3-2
22 Mendocino gentian <i>Gentiana setigera</i>	PDGEN060S0			G2	S1.2	1B/3-2-2
23 Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
24 Nuttall's saxifrage <i>Saxifraga nuttallii</i>	PDSAX0U160			G4?	S1.1	2/3-3-1

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25 Oregon coast Indian paintbrush <i>Castilleja affinis ssp. litoralis</i>	PDSCR0D1V0			G4G5T4	S2.2	2/2-2-1
26 Pacific fisher <i>Martes pennanti (pacifica) DPS</i>	AMAJF01021	Candidate		G5	S2S3	SC
27 Pacific gilia <i>Gilia capitata ssp. pacifica</i>	PDPLM040B6			G5T3T4	S2.2?	1B/2-2-2
28 Sanford's arrowhead <i>Sagittaria sanfordii</i>	PMALI040Q0			G3	S3.2	1B/2-2-3
29 Siskiyou Indian paintbrush <i>Castilleja miniata ssp. elata</i>	PDSCR0D0T0			G5T3	S2.2	2/2-2-1
30 Siskiyou checkerbloom <i>Sidalcea malviflora ssp. patula</i>	PDMAL110F9			G5T1	S1.1	1B/3-2-2
31 Sonoma tree vole <i>Arborimus pomo</i>	AMAFF10030			G3	S3	SC
32 Steller (=northern) sea-lion <i>Eumetopias jubatus</i>	AMAJC03010	Threatened		G3	S2	
33 Thurber's reed grass <i>Calamagrostis crassiglumis</i>	PMPOA17070			G3Q	S1.2	2/3-3-1
34 Tracy's romanzoffia <i>Romanzoffia tracyi</i>	PDHYD0E030			G4	S1.3	2/3-1-1
35 Waldo buckwheat <i>Eriogonum pendulum</i>	PDPGN084Q0			G4	S2.2	2/3-2-1
36 Wolf's evening-primrose <i>Oenothera wolfii</i>	PDONA0C1K0			G1	S1.1	1B/3-3-2
37 Yontocket's satyr <i>Coenonympha tullia yontocket</i>	IILEPN6035			G5T1T2	S1	
38 arctic spoonwort <i>Cochlearia officinalis var. arctica</i>	PDBRA0S032			G5T3T4	S1.3	2/3-1-1
39 arctic starflower <i>Trientalis arctica</i>	PDPRI0A030			G5	S1.2	2/3-2-1
40 black crowberry <i>Empetrum nigrum ssp. hermaphroditum</i>	PDEMP03021			G5T5	S2?	2/3-2-1
41 black swift <i>Cypseloides niger</i>	ABNUA01010			G4	S2	SC
42 cackling (=Aleutian Canada) goose <i>Branta hutchinsii leucopareia</i>	ABNJB05035	Delisted		G5T4	S2	
43 coast checkerbloom <i>Sidalcea oregana ssp. eximia</i>	PDMAL110K9			G5T1	S1.2	1B/3-2-3
44 coast cutthroat trout <i>Oncorhynchus clarkii clarkii</i>	AFCHA0208A			G4T4	S3	SC
45 coast fawn lily <i>Erythronium revolutum</i>	PMLIL0U0F0			G4	S2.2	2/2-2-1
46 coastal triquetrella <i>Triquetrella californica</i>	NBMUS7S010			G1	S1.2	1B/3-2-2

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47 dark-eyed gilia <i>Gilia millefoliata</i>	PDPLM04130			G2	S2.2	1B/2-2-2
48 double-crested cormorant <i>Phalacrocorax auritus</i>	ABNFD01020			G5	S3	SC
49 fibrous pondweed <i>Potamogeton foliosus</i> var. <i>fibrillosus</i>	PMPOT030B1			G5T2T4	S1S2	2/3-1-1
50 flaccid sedge <i>Carex leptalea</i>	PMCYP037E0			G5	S2?	2/3-2-1
51 foothill yellow-legged frog <i>Rana boylei</i>	AAABH01050			G3	S2S3	SC
52 fork-tailed storm-petrel <i>Oceanodroma furcata</i>	ABNDC04010			G5	S1	SC
53 great blue heron <i>Ardea herodias</i>	ABNGA04010			G5	S4	
54 great burnet <i>Sanguisorba officinalis</i>	PDROS1L060			G5?	S2.2	2/2-2-1
55 green sedge <i>Carex viridula</i> var. <i>viridula</i>	PMCYP03EM3			G5T5	S1.3	2/3-1-1
56 horned butterwort <i>Pinguicula vulgaris</i> ssp. <i>macroceras</i>	PDLNT01041			G5T4Q	S3.2	2/2-2-1
57 lakeshore sedge <i>Carex lenticularis</i> var. <i>limnophila</i>	PMCYP037A7			G5T5	S1S2.2	2/3-2-1
58 leafy-stemmed mitrewort <i>Mitella caulescens</i>	PDSAX0N020			G5	S2.3	2/2-1-1
59 little-leaved huckleberry <i>Vaccinium scoparium</i>	PDERI180Y0			G5	S2.2?	2/2-2-1
60 long-beard lichen <i>Usnea longissima</i>	NLLEC5P420			G4	S4.2	
61 maidenhair spleenwort <i>Asplenium trichomanes</i> ssp. <i>trichomanes</i>	PPASP021K2			G5T5	S2.3	2/3-1-1
62 maple-leaved checkerbloom <i>Sidalcea malachroides</i>	PDMAL110E0			G3	S3.2	1B/2-2-2
63 marsh pea <i>Lathyrus palustris</i>	PDFAB250P0			G5	S2S3	2/2-2-1
64 marsh violet <i>Viola palustris</i>	PDVIO041G0			G5	S1S2	2/3-2-1
65 meadow sedge <i>Carex praticola</i>	PMCYP03B20			G5	S2S3	2/2-2-1
66 minute pocket-moss <i>Fissidens pauperculus</i>	NBMUS2W0U0			G3?	S1.2	1B/2-2-3
67 naked flag-moss <i>Discelium nudum</i>	NBMUS2E010			G3G4	S1.2	2/3-2-1
68 northern red-legged frog <i>Rana aurora aurora</i>	AAABH01021			G4T4	S2?	SC

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69 opposite-leaved lewisia <i>Lewisia oppositifolia</i>	PDPOR040B0			G4	S2.2	2/2-2-1
70 osprey <i>Pandion haliaetus</i>	ABNKC01010			G5	S3	SC
71 pink sand-verbena <i>Abronia umbellata</i> ssp. <i>breviflora</i>	PDNYC010N2			G4G5T2	S2.1	1B/2-3-2
72 rhinoceros auklet <i>Cerorhinca monocerata</i>	ABNNN11010			G5	S3	SC
73 rocky coast Pacific sideband (snail) <i>Monadenia fidelis pronotis</i>	IMGASC7032			G4G5T1	S1	
74 sand dune phacelia <i>Phacelia argentea</i>	PDHYD0C070			G2	S1.1	1B/3-3-2
75 sand pea <i>Lathyrus japonicus</i>	PDFAB250C0			G5	S1.1	2/3-3-1
76 seacoast ragwort <i>Senecio bolanderi</i> var. <i>bolanderi</i>	PDAST8H0H1			G4T4	S1.2	2/3-2-1
77 serpentine catchfly <i>Silene serpentinicola</i>	PDCAR0U2B0			G2	S2.2	1B/2-2-3
78 serpentine sedge <i>Carex serpenticola</i>	PMCYP03KM0			G3?	S2.3	2/2-1-2
79 short-leaved evax <i>Hesperievax sparsiflora</i> var. <i>brevifolia</i>	PDASTE5011			G4T3	S3.2	2/2-2-1
80 southern torrent salamander <i>Rhyacotriton variegatus</i>	AAAAJ01020			G3G4	S2S3	SC
81 summer-run steelhead trout <i>Oncorhynchus mykiss irideus</i>	AFCHA0213B			G5T4Q	S2	SC
82 tidewater goby <i>Eucyclogobius newberryi</i>	AFCQN04010	Endangered		G3	S2S3	SC
83 tufted puffin <i>Fratercula cirrhata</i>	ABNNN12010			G5	S2	SC
84 western bog violet <i>Viola primulifolia</i> ssp. <i>occidentalis</i>	PDVIO040Y2			G5T2	S2.2	1B/2-2-2
85 western lily <i>Lilium occidentale</i>	PMLIL1A0G0	Endangered	Endangered	G1	S1.2	1B/3-3-2
86 western snowy plover <i>Charadrius alexandrinus nivosus</i>	ABNNB03031	Threatened		G4T3	S2	SC
87 western tailed frog <i>Ascaphus truei</i>	AAABA01010			G4	S2S3	SC
88 white-tailed kite <i>Elanus leucurus</i>	ABNKC06010			G5	S3	
89 yellow-tubered toothwort <i>Cardamine nuttallii</i> var. <i>gemmata</i>	PDBRA0K0R3			G5T3	S2.2	1B/3-1-2

APPENDIX B
MITIGATION MEASURES, MONITORING AND REPORTING PROGRAM FOR
THE 2006 FISHERIES RESTORATION GRANT PROGRAM

MITIGATION

I. AESTHETICS

No specific mitigation measures are required to protect aesthetics.

II. AGRICULTURE RESOURCES

No specific mitigation measures are required to protect agricultural resources.

III. AIR QUALITY

No specific mitigation measures are required to protect air quality.

IV. BIOLOGICAL RESOURCES

General Measures for Protection of Biological Resources

- 1) Timing. To avoid impacts to aquatic habitat the activities carried out in the restoration program typically occur during the summer dry season.
 - a) Work around streams is restricted to the period of June 15 through November 1 or the first rainfall. This is to take advantage of low stream flow and avoid the spawning and egg/alevin incubation period of salmon and steelhead.
 - b) Upslope work generally occurs during the same period as stream work. Road decommissioning and other sediment reduction activities are dependent on soil moisture content. Upslope projects do not have seasonal restrictions in the Incidental Take Statement but work may be restricted at some sites to allow soils to dry out adequately. In some areas equipment access and effectiveness is constrained by wet conditions.
 - c) The permissible work window for individual work sites will be further constrained as necessary to avoid the nesting or breeding seasons of birds and terrestrial animals. At most sites with potential for raptor (including northern spotted owls) and migratory bird nesting, if work is conditioned to start after July 31, potential impacts will be avoided and no surveys will be required. For work sites that might contain nesting marbled murrelets, the starting date will be September 15 in the absence of surveys. The work window at individual work sites could be advanced if surveys determine that nesting birds will not be impacted.

- d) For restoration work that could affect swallow nesting habitat (such as removal of culverts showing evidence of past swallow nesting), construction will occur after August 31 to avoid the swallow nesting period. Alternatively, the suitable bridge nesting habitat will be netted before initiation of the breeding season to prevent nesting. Netting must be installed before any nesting activity begins, generally prior to March 1. Swallows must be excluded from areas where construction activities cause nest damage or abandonment.
 - e) Planting of seedlings shall begin after December 1, or when sufficient rainfall has occurred to ensure the best chance of survival of the seedlings, but in no case after April 1.
- 2) During all activities at project work sites, all trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.
 - 3) Staging/storage areas for equipment, materials, fuels, lubricants, and solvents, will be located outside of the stream's high water channel and associated riparian area. Stationary equipment such as motors, pumps, generators, compressors, and welders located within the dry portion of the stream channel or adjacent to the stream, will be positioned over drip-pans. Vehicles will be moved out of the normal high water area of the stream prior to refueling and lubricating. The contractor shall ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, DFG shall ensure that the contractor has prepared a plan to allow a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
 - 4) The contractor shall ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible. When practicable, invasive exotic plants at the work site shall be removed.
 - 5) The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the restoration action.
 - 6) Any equipment work within the stream channel shall be performed in isolation from the flowing stream. If there is any flow when the work is done, the contractor shall construct coffer dams upstream and downstream of the excavation site and divert all flow from upstream of the upstream dam to downstream of the downstream dam. The coffer dams may be constructed with clean river gravel or sand bags, and may be sealed with sheet plastic.

Sand bags and any sheet plastic shall be removed from the stream upon project completion. Clean river gravel may be left in the stream, but the coffer dams must be breached to return the stream flow to its natural channel.

- 7) For minor actions, where the disturbance to construct coffer dams to isolate the work site would be greater than to complete the action (for example, placement of a single boulder cluster), then measures will be put in place immediately downstream of the work site to capture suspended sediment. This may include installation of silt catchment fences across the stream, or placement of a filter berm of clean river gravel. Silt fences and other non-native materials will be removed from the stream following completion of the activity. Gravel berms may be left in place after breaching, provided they do not impede the stream flow.
- 8) Any equipment entering the active stream (for example, in the process of installing a coffer dam) shall be preceded by an individual on foot to displace wildlife and prevent them from being crushed.
- 9) If any wildlife is encountered during the course of construction, said wildlife shall be allowed to leave the construction area unharmed, and shall be flushed, hazed, or herded in a safe direction away from the project site.
- 10) Any red tree vole nests encountered at a work site will be flagged and avoided during construction.
- 11) For any work sites containing western pond turtles, foothill yellow-legged frogs or tailed frogs, the contractor shall provide to the DFG contract manager for review and approval, a list of the exclusion measures that will be used at their work site to prevent take or injury to any individual pond turtles or frogs that could occur on the site. The contractor shall ensure that the approved exclusion measures are in place prior to construction. Any turtles or frogs found within the exclusion zone shall be moved to a safe location upstream or downstream of the work site, prior to construction.
- 12) All habitat improvements shall be done in accordance with techniques in the *California Salmonid Stream Habitat Restoration Manual*. The most current version of the manual is available at: <http://www.dfg.ca.gov/nafwb/index.html>

Specific Measures for Endangered, Rare, or Threatened Species That Could Occur at Specific Work Sites

Rare Plants

The work sites for the 2006 grants projects are within the range of a variety of rare plant species. The plant species found on a State or Federal special status list that might be associated with the 2006 grants projects, was determined from a search of DFG's Natural Diversity Database. Because of the large number of widely scattered work sites proposed, it is not feasible to survey individual work sites in advance and still be able to implement the restoration projects, due to time limits on the availability of restoration funds. Lists of special status plant species that might occur at individual work sites are presented in Appendix A. Past experience with grants projects from previous years has shown that the potential for adverse impacts on rare plants at salmonid restoration work sites is very low. Few sites surveyed for rare plants between 1999 and 2005 were found to have rare plant colonies; disturbance of rare plants was avoided in all cases. In order to avoid impacts to rare plants during the 2006 grants projects, the following mitigation measures will be implemented:

- 1) DFG will survey all work sites for rare plants prior to any ground disturbing activities. Rare plant surveys will be conducted following the "Guidelines for Assessing the Effects of Proposed Developments on Rare and Endangered Plants and Plant Communities" (DFG, 2000). These guidelines are available on the web at: http://www.dfg.ca.gov/hcpb/species/stds_gdl/survmonitr.shtml.
- 2) If any special status plant species are identified at a work site, DFG will require one or more of the following protective measures to be implemented before work can proceed:
 - a) Fencing to prevent accidental disturbance of rare plants during construction,
 - b) On-site monitoring by a qualified biologist during construction to assure that rare plants are not disturbed, and
 - c) Redesign of proposed work to avoid disturbance of rare plants.
- 3) If it becomes impossible to implement the project at a work site without potentially significant impacts to rare plants, then activity at that work site will be discontinued.
- 4) DFG shall ensure that the contractor or responsible party is aware of these site-specific conditions, and will inspect the work site before, during, and after completion of the action item.

California freshwater shrimp (*Syncaris pacifica*)

Of the 75 work sites proposed as part of the 2006 grants program, 2 occur within the range of California freshwater shrimp (CFS) (Austin Creek Forks, 2005 and Nicol-Greene Riparian Restoration Project) (Appendix A). The range of the CFS includes Marin, Napa, and Sonoma counties, excluding the Gualala River watershed. Therefore, the potential for impacts to CFS will be mitigated by complying with all of the mandatory terms and conditions associated with incidental take authorized by the U. S. Fish and Wildlife Service, Biological Opinion dated August 17, 2004. DFG proposes to implement the following measures to minimize adverse effects to the CFS and its habitat:

Where appropriate, a Service-approved DFG biologist will survey each site for shrimp before allowing work to proceed and prior to issuance of a Streambed Alteration Agreement. All overhanging vegetation, undercut banks, and tree roots will be surveyed with a butterfly net or fish net. In site locations where shrimp are present, DFG will require the contractor to implement the mitigation measures listed:

- 1) Equipment work will be performed only in riffle, shallow run, or dry habitats, avoiding low velocity pool and run habitats occupied by shrimp, unless shrimp are relocated according to the protocol described below. "Shallow" run habitat is defined as a run with a maximum water depth, at any point, less than 12 inches, and without undercut banks or vegetation overhanging into the water.
- 2) Hand placement of logs or rocks will be permitted in pool or run habitat in stream reaches where shrimp are known to be present only if the placement will not adversely affect shrimp or their habitat.
- 3) Care shall be taken during placement or movement of materials in the stream to prevent any damage to undercut stream banks and to minimize damage to any streamside vegetation. Streamside vegetation overhanging into pools or runs shall not be modified.
- 4) No log or rock weirs (including vortex rock weirs), or check dams shall be constructed that would span the full width of the low flow stream channel. Vegetation shall be incorporated with any structures involving rocks or logs to enhance migration potential for shrimp.
- 5) DFG must be notified at least one week in advance of the date on which work will start in the stream, so that a qualified DFG biologist can monitor activities at the work site. All work in the stream shall be stopped immediately if it is determined by DFG that the work has the potential to adversely impact on the shrimp or its habitat. Work shall not recommence until DFG is satisfied that there will be no impact on the shrimp.

- 6) At least 15 days prior to the onset of activities, DFG will submit the name(s) and credentials of biologists who will conduct activities specified in the following measures. The contractor will implement any additional conservation measures requested by DFG and/or the Service.
- 7) If in the opinion of the Service-approved biologist, adverse affects to shrimp would be further minimized by moving shrimp away from the project site, the following procedure shall be used:
 - a) A second survey will be conducted within 24 hours of any construction activity and relocated. Shrimp will be moved while in the net, or placed in buckets containing stream water and then moved directly to the nearest suitable habitat. Stress and temperature monitoring of shrimp shall be performed by the Service-approved biologist. Numbers of shrimp and any mortalities or injuries must be identified and recorded. Shrimp habitat is defined as reaches in low elevation (less than 116m) and low gradient (less than 1 percent) streams where banks are structurally diverse with undercut banks, exposed fine root systems, overhanging woody debris or overhanging vegetation.
 - b) When no other habitat exists on a landowner's property, the shrimp shall be held in suitable containers with site water and released at the end of the day. Containers shall be placed in the shade.
 - c) Only Service-approved biologists shall participate in the capture, handling, and monitoring of shrimp. DFG will report annually on the number of capture, release and injuries/mortality and agrees to modify capture/release strategy with Service staff as needed to prevent adverse effects.
 - d) If moving the shrimp out of the work area cannot be accomplished, and other avoidance measures have been deemed inappropriate, the DFG will drop activities at the work site from the project.
 - e) Before any construction activities begin at a work site that may contain shrimp, the Service-approved DFG biologist shall conduct a training session for all construction personnel. At a minimum the training shall include a description of the shrimp and its habitat, the importance of the shrimp and its habitat, the general measures that are being implemented to conserve the shrimp as they relate to the work site, and the work site boundaries where construction may occur.
- 8) At any work site that may contain shrimp, all fueling and maintenance of vehicles, other equipment and staging areas shall occur at least 65 feet from any riparian habitat or water body. The contractor shall ensure contamination

of habitat does not occur during such operations. Prior to the onset of work, DFG shall ensure that the contractor has prepared a plan to allow a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

- 9) A Service-approved DFG biologist shall be present at the work site until such time as all removal of shrimp, instruction of workers, and habitat disturbance associated with the restoration project have been completed. The Service-approved biologist shall have the authority to halt any action that might result in the loss of any shrimp or its habitat. If work is stopped, the Service-approved biologist shall immediately notify DFG and the Service.
- 10) Ground disturbing activities in potential shrimp habitat shall be restricted to the period between July 1 and November 1.
- 11) If a work site is temporarily dewatered by pumping, intakes shall be completely screened with wire mesh no larger than 0.2 inch to prevent shrimp from entering the pump system. Water shall be released or pumped downstream, at an appropriate rate, to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow with the least disturbance to the substrate.
- 12) Service-approved biologist shall permanently remove from within the project work site, any individuals of exotic species, such as bullfrogs, centrarchid fishes, and non-native crayfish, to the maximum extent possible. The contractor shall have the responsibility that such removals are done in compliance with the California Department of Fish and Game Code.
- 13) Invasive non-native vegetation that provides shrimp habitat and is removed as a result of Program activities shall be replaced with native vegetation that provides comparable habitat for the shrimp. Revegetated sites shall be irrigated as necessary until vegetation is established. Revegetated sites shall be monitored until shading and cover achieves 80 % of pre-project shading and cover and for a minimum of 5 years.
- 14) No dumping of dead trees, yard waste or brush shall occur in shrimp streams, which may result in oxygen depletion of aquatic systems.

Coho salmon (*Oncorhynchus kisutch*), Chinook salmon (*Oncorhynchus tshawytscha*), Steelhead (*Oncorhynchus mykiss*), and Coast cutthroat trout (*Oncorhynchus clarki clarki*)

While all of the work proposed under this program will enhance habitat for one or more of these species, 67 of the 75 work sites proposed as part of the

2006 grants program will involve instream work in their habitat (Appendix A). In order to avoid any potential for negative impacts to these species the following measures will be implemented:

- 1) Project work within the wetted stream shall be limited to the period between June 15 and November 1, or the first significant fall rainfall. This is to take advantage of low stream flows and to avoid the spawning and egg/alevin incubation period of salmon and steelhead. Whenever possible, the work period at individual sites shall be further limited to entirely avoid periods when salmonids are present (for example, in a seasonal creek, work will be confined to the period when the stream is dry).
- 2) No heavy equipment shall operate in the live stream, except as may be necessary to construct coffer dams to divert stream flow and isolate the work site.
- 3) Work must be performed in isolation from the flowing stream. If there is any flow when the work is done, the operator shall construct coffer dams upstream and downstream of the excavation site and divert all flow from upstream of the upstream dam to downstream of the downstream dam. The coffer dams may be constructed with clean river gravel or sand bags, and may be sealed with sheet plastic. Sand bags and any sheet plastic shall be removed from the stream upon project completion. Clean river gravel may be left in the stream, but the coffer dams must be breached to return the stream flow to its natural channel.
- 4) For minor actions, where the disturbance to construct coffer dams to isolate the work site would be greater than to complete the action (for example, placement of a single boulder cluster), measures will be put in place immediately downstream of the work site to capture suspended sediment. This may include installation of silt catchment fences across the stream, or placement of a filter berm of clean river gravel. Silt fences and other non-native materials will be removed from the stream following completion of the activity. Gravel berms may be left in place after breaching, provided they do not impede the stream flow.
- 5) If it is necessary to divert flow around the work site, either by pump or by gravity flow, the suction end of the intake pipe shall be fitted with fish screens meeting DFG and NMFS criteria to prevent entrainment or impingement of small fish. Any turbid water pumped from the work site itself to maintain it in a dewatered state shall be disposed of in an upland location where it will not drain directly into any stream channel.
- 6) Any disturbed banks shall be fully restored upon completion of construction. Revegetation shall be done using native species. Planting techniques can include seed casting, hydroseeding, or live planting methods using the

techniques in Part XI of the *California Salmonid Stream Habitat Restoration Manual*.

- 7) Suitable large woody debris removed from fish passage barriers that is not used for habitat enhancement, shall be left within the riparian zone so as to provide a source for future recruitment of wood into the stream.
- 8) Measures shall be taken to minimize harm and mortality to listed salmonids resulting from fish relocation and dewatering activities:
 - a) Fish relocation and dewatering activities shall only occur between June 15 and November 1 of each year.
 - b) DFG shall minimize the amount of wetted stream channel that is dewatered at each individual project site to the fullest extent possible.
 - c) All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service *Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act*, June 2000.
- 9) If for some reason these mitigation measures cannot be implemented, or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to anadromous salmonids or their habitat, then activity at that work site will be discontinued.

California red-legged frog (*Rana aurora draytonii*)

Seven of the work sites proposed as part of the 2006 grants program are within potential habitat for the California red-legged frogs (CRLF) (Appendix A). Activities proposed for the 7 sites (Lower Santa Rosa Creek Bank, Ventura River Bank Restoration, Save the Redwoods League Post Creek Sediment, Gobernador Creek Bridge Replacement, Barrier Removal - Memorial County Park, Frenchman's Creek Fish Passage Improvement, and Andrews Property Riparian Habitat Improvement) will not remove or degrade CRLF habitat; however, precautions will be required at this site to avoid the potential for take of CRLF while using heavy equipment at these sites. The potential for impacts to CRLF will be mitigated by complying with all of the mandatory terms and conditions associated with incidental take authorized by the U. S. Fish and Wildlife Service, Biological Opinion dated August 17, 2004 and August 13, 2004. DFG proposes to implement the following measures to minimize adverse effects to the CRLF and its habitat:

- 1) At least 15 days prior to the onset of activities, the DFG will submit the names(s) and credentials of biologists who would conduct activities specified in the following measures. No project activities will begin until the DFG has

received written approval from the Service that the biologist(s) is qualified to conduct the work.

- 2) A Service-approved biologist will survey the work site at least two weeks before the onset of activities. If red-legged frogs are found in the project area and these individuals are likely to be killed or injured by work activities, the Service-approved biologist will allow sufficient time to move them from the site before work activities resume. Only Service-approved biologists will participate in activities with the capture, handling, and monitoring of red-legged frogs.
- 3) Before any construction activities begin on a project, a Service-approved biologist will conduct a training session for all construction personnel. At a minimum, the training shall include a description of the red-legged frog and its habitat, the importance of the red-legged frog and its habitat, the general measures that are being implemented to conserve the red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.
- 4) A Service-approved biologist shall be present at the work site until such time as removal of red-legged frogs, instruction of workers, and habitat disturbance has been completed. The Service-approved biologist shall have the authority to halt any action that might result in impacts that exceed the levels anticipated by the Corps and Service during review of the proposed action. If work is stopped, the Corps and the Service shall be notified immediately by the Service-approved biologist or on-site biological monitor.
- 5) During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.
- 6) All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 65 feet from any riparian habitat or water body. The Corps and the DFG will ensure contamination of habitat does not occur during such operations. Prior to the onset of work, the DFG will ensure that the contractor has prepared a plan to allow a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- 7) A Service-approved biologist will ensure that the spread or introduction of invasive exotic plant species is avoided to the maximum extent possible. Areas disturbed by project activities will be restored and planted with native plants.

- 8) The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be clearly demarcated.
- 9) Ground disturbing activities in potential red-legged frog habitat will be restricted to the period between July 1 and October 15.
- 10) To control erosion during and after project implementation, DFG will implement best management practices, as identified by the appropriate Regional Water Quality Control Board.
- 11) If a work site is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh not larger than 0.2 inch to prevent red-legged frogs from entering the pump system. Water will be released or pumped downstream at an appropriate rate to maintain down stream flows during construction activities and reduce the creation of ponded water. Upon completion of construction activities, any barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the substrate.
- 12) A Service-approved biologist will permanently remove from the project area, any individuals of exotic species, such as bullfrogs (*Rana catesbiana*), centrarchid fishes, and non-native crayfish to the maximum extent possible. The biologist will have the responsibility to ensure that their activities are in compliance with the Fish and Game Code.
- 13) Prior to the onset of any project-related activities, the approved biologist must identify appropriate areas to receive red-legged frog adults and tadpoles from the project areas. These areas must be in proximity to the capture site, contain suitable habitat, not be affected by project activities, and be free of exotic predatory species (ie. bullfrogs, crayfish) to the best of the approved biologist's knowledge.
- 14) If red-legged frogs are found and these individuals are likely to be killed or injured by work activities, the Service-approved biologists must be allowed sufficient time to move them from the site before work activities resume. The Service-approved biologist must relocate the red-legged frogs the shortest distance possible to one of the predetermined areas. The Service-approved biologist must maintain detailed records of any individuals that are moved (eg., size, coloration, any distinguishing features, photographs (digital preferred) to assist in determining whether translocated animals are returning to the point of capture. Only red-legged frogs that are at risk of injury or death by project activities may be moved.
- 15) Biologists who handle red-legged frogs must ensure that their activities do not transmit diseases. To ensure that diseases are not conveyed between work

sites by the Service-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force must be followed at all times.

Arroyo Toad (*Bufo microscaphus californicus*)

Of the 75 work sites proposed as part of the 2006 grants program, 1 site (La Rancho La Vina Bank Restoration) could potentially affect suitable habitat for the Arroyo Toad (Appendix A). None of the activities proposed for these sites will significantly degrade existing habitat. To avoid potential impact, the following mitigation measures will be implemented:

- 1) The proponent shall retain a biologist who is familiar with arroyo toads to monitor all construction activities and assist the proponent in the implementation of the monitoring program. This person will be approved by the USFWS prior to the onset of ground-disturbing activities. This biologist will be referred to as the authorized biologist hereafter in this document. The authorized biologist will be present during all activities immediately adjacent to or within the project site.
- 2) Prior to the onset of construction activities, the proponent shall provide all personnel who will be present on work areas within or adjacent to the project area the following information:
 - a. A detailed description of the arroyo toad including color photographs;
 - b. The protection the arroyo toad receives under the Endangered Species Act and possible legal action or that may be incurred for violation of the Act;
 - c. The protective measures being implemented to conserve the arroyo toad and other species during construction activities associated with the proposed project; and
 - d. A point of contact if arroyo toads are observed.
- 3) All trash that may attract predators of the arroyo toad will be removed from work sites or completely secured at the end of each work day.
- 4) Prior to the onset of any construction activities, the proponent shall meet on-site with staff from the USFWS and the authorized biologist. The proponent shall provide information on the general location of construction activities within habitat of the arroyo toad and the actions taken to reduce impacts to this species. Because arroyo toads may occur in various locations during different seasons of the year, the proponent, the Service, and biologist will, at this preliminary meeting, determine the seasons when specific construction activities would have the least adverse effect on arroyo toads. The goal of this effort is to reduce the level of mortality of arroyo toads during construction. The parties realize that complete elimination of all mortality is likely not possible because some arroyo toads may occur anywhere within suitable habitat during any given season; the detection of every individual over large

areas is impossible because of the small size, fossorial habits, and cryptic coloration of the arroyo toad.

- 5) Where construction can occur in habitat where arroyo toads are widely distributed, work areas will be fenced in a manner that prevents equipment and vehicles from straying from the designated work area into adjacent habitat. The authorized biologist will assist in determining the boundaries of the area to be fenced. All workers will be advised that equipment and vehicles must remain within the fenced work areas.
- 6) If the authorized biologist determines that fencing to exclude arroyo toads should be installed, he or she will direct the installation of the fence and conduct a minimum of three nocturnal surveys to move any arroyo toads from within the fenced area to suitable habitat outside of the fence. If arroyo toads are observed on the final survey or during subsequent checks, the authorized biologist will conduct additional nocturnal surveys if he or she determines that they are necessary.
- 7) Fencing to exclude arroyo toads will be at least 24 inches in height. The type of fencing must be approved by the authorized biologist.
- 8) Construction activities that may occur immediately adjacent to breeding pools or other areas where large numbers of arroyo toads may congregate will be conducted during times of the year when individuals have dispersed from these areas. The authorized biologist will assist the proponent in scheduling its work activities accordingly.
- 9) If arroyo toads are found within an area that has been fenced to exclude arroyo toads, activities will cease until the authorized biologist moves the arroyo toads.
- 10) If arroyo toads are found in a construction area where fencing was deemed unnecessary, work will cease until the authorized biologist moves the arroyo toads. The authorized biologist will then determine whether additional surveys or fencing are needed. Work may resume while this determination is being made, if deemed appropriate by the authorized biologist.
- 11) Any arroyo toads found during clearance surveys or otherwise removed from work areas will be placed in nearby suitable, undisturbed habitat. The authorized biologist will determine the best location for their release, based on the condition of the vegetation, soil, and other habitat features and the proximity to human activities. Clearance surveys shall occur on a daily basis in the work area.
- 12) The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed.

- 13) Staging areas for all construction activities will be located outside of stream channel in upland areas designated for this purpose. All staging areas will be fenced.
- 14) To ensure that diseases are not conveyed between work sites by the authorized biologist or his or her assistants, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times.
- 15) Drift fence/pitfall trap surveys will be implemented prior to construction in an effort to reduce potential mortality to this species. Prior to any construction activities in the project area, silt fence shall be installed completely around the proposed work area and a qualified biologist should conduct a preconstruction/clearance survey of the work area for arroyo toads. Any toads found in the work area should be relocated to suitable habitat within the watershed. The silt fence shall be maintained for the duration of the work activity.
- 16) The proponent shall conduct repair activities after 15 August and before the commencement of the breeding season (February) in riparian areas, except during an emergency, to reduce potential impacts to the arroyo toad. Ongoing maintenance to raised portions of the bridge would not be restricted.
- 19) The proponent shall restrict work to daylight hours, except during an emergency, in order to avoid nighttime activities when arroyo toads may be present on the access road. Construction vehicle traffic during the day is not expected to pose a serious mortality threat to arroyo toads. Traffic speed should be maintained at 20 mph or less in the work area.

Least Bell's Vireo (*Vireo bellii pusillus*)

Of the 75 work sites proposed as part of the 2006 grants program, 1 site (Ventura River Bank Restoration) could potentially affect suitable habitat for the Least Bell's Vireo (Appendix A). None of the activities proposed for these sites will significantly degrade existing vireo habitat, but the potential exists for the noise from heavy equipment work and the harvesting of willow branches for revegetation at these sites to disrupt vireo nesting. To avoid this potential impact, the following mitigation measures will be implemented:

- 1) Work shall not begin within one quarter mile of any site with known or potential habitat for the Least Bell's Vireo until after September 15.
- 2) Harvest of willow branches at any site with potential habitat for the Least Bell's Vireo will not occur between March 1 and September 15.

- 3) The work window at individual work sites may be modified, if protocol surveys determine that nesting birds do not occur within 0.25 miles of the site during the breeding season.
- 4) The DFG shall ensure that the contractor or responsible party is aware of this site-specific condition, and will inspect the work site before, during, and after completion of the action item.
- 5) If for some reason these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to Least Bell's Vireo or their habitat, then activity at that work site will be discontinued.

Marbled murrelet (*Brachyrampus marmoratus*)

The marbled murrelet is listed as endangered under CESA and threatened under ESA. Activities to protect and restore habitat will not remove or degrade suitable habitat for marbled murrelets, however nesting birds could be disturbed by the noise from heavy equipment required for projects such as culvert removal or placement of large woody debris.

Of the 75 work sites proposed as part of the 2006 grants program, 10 are in potentially suitable habitat for the marbled murrelet (Cedar Creek, Lower Terwer Bank, Mainstem Terwer Upslope, Mill Creek Culvert Repair, Salmon Creek Headwaters, Shaw Creek Decommissioning, Strawberry Creek Restoration, Yager Creek Channel Restoration, Cottoneva Creek, and Barrier Removal – Memorial County Park) (Appendix A). None of the activities proposed for these sites will remove, degrade, or downgrade suitable marbled murrelet habitat. Direct injury or mortality is not an issue. The potential exists for noise from heavy equipment work at these sites to disrupt marbled murrelet nesting. To avoid this potential impact, the following mitigation measures will be implemented:

- 1) Adverse effects can be avoided by limiting heavy equipment work within 0.25 mile of marbled murrelet habitat to the period between September 16 and March 23.
- 2) Work shall not begin within 0.25 mile of any site with occupied or un-surveyed suitable marbled murrelet habitat between March 24 and September 15.
- 3) The work window at individual work sites near suitable habitat may be modified, if protocol surveys determine that habitat quality is low and occupancy is very unlikely.
- 4) If for some reason these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent

or avoid potential adverse effects to marbled murrelet or their habitat, then activity at that work site will be discontinued.

Northern spotted owl (*Strix occidentalis caurina*)

The northern spotted owl is listed as threatened under ESA. Restoration activities should not alter habitat for northern spotted owls, however nesting birds could be disturbed by the noise from heavy equipment during projects such as culvert removal or placement of large woody debris. Disturbance can be avoided by limiting heavy equipment work within 0.25 miles of suitable spotted owl habitat to the period between August 1 and January 31.

Of the 75 work sites proposed as part of the 2006 grants program, 16 are in potentially suitable habitat for the northern spotted owl (Appendix A). None of the activities will remove, degrade or downgrade spotted owl habitat. Direct injury or mortality of owls is not an issue. The potential exists for heavy equipment work at these sites to disturb spotted owl nesting. To avoid this potential effect, the following mitigation measures will be implemented:

- 1) Work at any site within 0.25 miles of suitable habitat for the northern spotted owl will not occur from February 1 to July 31.
- 2) The work window at individual work sites may be advanced prior to July 31, if protocol surveys determine that suitable habitat is unoccupied.
- 3) If for some reason these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to northern spotted owls or their habitat, then activity at that work site will be discontinued and CDFG will reinitiate consultation with FWS.

Willow flycatcher (*Empidonax traillii*)

Of the 75 work sites proposed as part of the 2006 grants program, 1 could potentially affect suitable habitat for the willow flycatcher by the harvesting of willow branches for riparian planting and construction of live willow mattresses and live willow walls (Rancho La Vina Bank) (Appendix A). None of the activities proposed for these sites will significantly degrade existing willow flycatcher habitat, but the potential exists for the noise from heavy equipment work or harvesting of revegetation material at these sites to disrupt willow flycatcher nesting. To avoid this potential impact, the following mitigation measures will be implemented:

- 1) Heavy equipment work shall not begin within one quarter mile of any site with known or potential habitat for the willow flycatcher until after August 31.
Heavy equipment work shall not begin within one quarter mile of any site with

known or potential habitat for the southwestern willow flycatcher until after September 15.

- 2) Harvest of willow branches at any site with potential habitat for the willow flycatcher will not occur between May 1 and August 31. Harvest of willow branches at any site with potential habitat for the southwestern willow flycatcher will not occur between May 1 and September 15.
- 3) The work window at individual work sites may be modified, if protocol surveys determine that nesting birds do not occur within 0.25 miles of the site during the breeding season.
- 4) No more than 1/3 of any willow plant shall be harvested annually. Care shall be taken during harvest not to trample or over harvest the willow sources.
- 5) DFG shall ensure that the contractor or responsible party is aware of this site-specific condition, and will inspect the work site before, during, and after completion of the action item.
- 6) If for some reason these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to willow flycatcher or their habitat, then activity at that work site will be discontinued.

Point Arena mountain beaver (*Aplodontia rufa nigra*)

Of the 75 projects proposed as part of the 2006 grants program, none occur within the range of the Point Arena mountain beaver (PAMB) (Appendix A). Of those projects, 75 have no potential to adversely affect PAMB because no work will occur in any habitat used by PAMB. However, if PAMB or PAMB habitats are encountered during implementation of any projects, to avoid potential impacts to PAMB the following mitigation measures will be implemented:

- 1) Qualified DFG personnel will survey each work site for PAMB. Qualification of surveyors, survey protocols, and reporting will conform to USFWS's *Draft Guidelines for Project-Related Habitat Assessments and Surveys for Point Arena Mountain Beaver*. Per the *Guidelines*, if the activity status of a burrow is in doubt, or if there is un-surveyed potential habitat, PAMB active presence will be assumed.
- 2) For work sites where PAMB active presence is confirmed or assumed, all protective measures prescribed by USFWS's *Draft Point Arena Mountain Beaver Standard Protection Measures for No-Take Determinations* will be followed, through issuance of a Streambed Alteration Agreement and/or directives to the contractor by the DFG Contract Manager. The protective

measures most pertinent to DFG salmonid habitat improvement projects include:

- a) No operation of noise generating equipment (e.g. chainsaws) within 100 feet of active burrows during the breeding season (December 15 – June 30).
 - b) No operation of mechanical equipment (e.g backhoes, excavators) within 100 feet of active burrows during the breeding season (December 15 – June 30), and within 50 feet the remainder of the year.
 - c) No ground disturbance (e.g. dumping of boulders) within 500 feet of active burrows during breeding season, and within 100 feet the remainder of the year. No severe ground disturbance (e.g. driving of bridge piles, blasting) within 500 feet of active burrows at any time.
 - d) No habitat modification (e.g. vegetation removal) within 400 feet of active burrows.
 - e) No vegetation modification or removal, or construction of permanent barriers (e.g. fences) at any location or time that may disrupt dispersal or movement of PAMB.
 - f) No vehicular or foot traffic within 25 feet of active burrows, and no alteration of water drainage or hydrology in active burrow areas.
- 3) DFG will require that the Contract Manager must be notified at least one week in advance of the date on which work will start, so that a qualified DFG biologist can monitor activities at the work site. If the necessary protective measures cannot be implemented at a work site, then no work at the site will occur.

V. CULTURAL RESOURCES

Ground-disturbance will be required to implement the project at some work sites that have the potential to affect cultural resources. This potential impact will be avoided through implementation of the following mitigation measures:

- 1) DFG will contract with a qualified archaeologist(s) and paleontologist(s) to complete cultural and paleontological resource surveys at any sites with the potential to be impacted prior to any ground-disturbing activities. Cultural and paleontological resource surveys will be conducted using standard protocols.
- 2) If cultural and or paleontological resource sites are identified at a site, DFG will require one or more of the following protective measures to be implemented before work can proceed: a) Fencing to prevent accidental

disturbance of cultural resources during construction, b) on-site monitoring by a cultural and or paleontological resource professional during construction to assure that cultural resources are not disturbed, c) redesign of proposed work to avoid disturbance of cultural resources.

- 3) DFG shall report any previously unknown historic, archeological and paleontological remains discovered at a site to the U. S. Army Corps of Engineers as required in the Regional General Permit.
- 4) If it becomes impossible to implement the project at a work site without disturbing cultural or paleontological resources, then activity at that work site will be discontinued.
- 5) DFG shall ensure that the contractor or responsible party is aware of these site-specific conditions, and will inspect the work site before, during, and after completion of the action item.

VI. GEOLOGY AND SOILS

There is no potential for a significant adverse impact to geology and soils; implementation of the restoration project will contribute to an overall reduction in erosion and sedimentation. Existing roads will be used to access work sites. Ground disturbance at most work sites will be minimal, except for road improvements or decommissioning. Road improvements and decommissioning will involve moving large quantities of soil from road fills and stream crossings to restore historic land surface profiles and prevent chronic erosion and sediment delivery to streams. In order to avoid temporary increases in surface erosion, the following mitigation measures will be implemented:

- 1) DFG will implement the following measures to minimize harm to listed salmonids resulting from culvert replacement activities and other instream construction work:
 - a) All stream crossing replacement or modification designs, involving fish passage, must be visually reviewed and authorized by NOAA Fisheries (or DFG) engineers prior to commencement of work.
 - b) If the stream in the project location was not passable to, or was not utilized by all life stages of, all covered salmonids prior to the existence of the road crossing, the project shall pass the life stages and covered salmonid species that historically did pass there. Retrofit culverts shall meet the fish passage criteria for the passage needs of the listed species and life stages historically passing through the site prior to the existence of the road crossing.

- c) Effective erosion control measures shall be in-place at all times during construction. Construction within the 5-year flood plain will not begin until all temporary erosion controls (eg., straw bales or silt fences that are effectively keyed-in) are in-place down slope of project activities within the riparian area. Erosion control measures shall be maintained throughout the construction period. If continued erosion is likely to occur after construction is completed, then appropriate erosion prevention measures shall be implemented and maintained until erosion has subsided.
 - d) Sediment shall be removed from sediment controls once it has reached one-third of the exposed height of the control. Whenever straw bales are used, they shall be staked and dug into the ground 6 inches. Catch basins shall be maintained so that no more than 6 inches of sediment depth accumulates within traps or sumps.
 - e) Sediment-laden water created by construction activity shall be filtered before it leaves the right-of-way or enters the stream network or an aquatic resource area. Silt fences or other detention methods shall be installed as close as possible to culvert outlets to reduce the amount of sediment entering aquatic systems.
 - f) Upon project completion, all exposed soil present in and around the project site shall be stabilized within 7 days.
- 2) DFG will implement the following measures to minimize harm to listed salmonids resulting from construction in the riparian corridor:
- a) Retain as many trees and brush as feasible, emphasizing shade producing and bank stabilizing trees and brush.
 - b) Use project designs and access points that minimize riparian disturbance without affecting less stable areas, which may increase the risk of channel instability.
 - c) Minimize compaction by using equipment that either has (relative to other equipment available) less pressure per square inch on the ground or a greater reach, thus resulting in less compaction or less area overall compacted or disturbed.
 - d) At the completion of the project, soil compaction that is not an integral element of the design of a crossing should be de-compacted.
 - e) Disturbed and compacted areas shall be revegetated with native plant species. The species used should be specific to the project vicinity or the region of the state where the project is located, and comprise a diverse community structure (plantings should include both woody and

herbaceous species). Plant at a ratio of two plantings to one removed plant.

- f) Unless otherwise specified, the standard for success is 80 percent survival of plantings or 80 percent ground cover for broadcast planting of seed after a period of 3 years.
 - g) The spread or introduction of invasive exotic plants will be avoided to the maximum extent possible.
- 3) DFG will implement the following measures to minimize harm to listed salmonids resulting from road decommissioning activities:
- a) Woody debris will be concentrated on finished slopes adjacent to stream crossings to reduce surface erosion; contribute to amounts of organic debris in the soil; encourage fungi; provide immediate cover for small terrestrial species; and to speed recovery of native forest vegetation.
 - b) Work sites will be winterized at the end of each day when significant rains are forecast that may cause unfinished excavations to erode. Winterization procedures shall supervised by a professional trained in erosion control techniques and involve taking necessary measures to minimize erosion on unfinished work surfaces. Winterization includes the following: smoothing unfinished surfaces to allow water to freely drain across them without concentration or ponding; compacting unfinished surfaces where concentrated runoff may flow with an excavator bucket or similar tool, to minimize surface erosion and the formation of rills; and installation of culverts, silt fences, and other erosion control devices where necessary to convey concentrated water across unfinished surfaces, and trap exposed sediment before it leave the work site.
 - c) Adequate erosion control supplies (gravel, straw bales, shovels, etc.) shall be kept at all restoration sites to ensure sediment is kept out of water bodies.
 - d) Mulching and seeding is required on all exposed soil which may deliver sediment to a stream.

VII. HAZARDS AND HAZARDOUS MATERIALS

The project will not create a significant hazard to the public or the environment. At work sites requiring the use of heavy equipment, there is a small risk of an accident upsetting the machine and releasing fuel, oil, and coolant, or of an accidental spark from equipment igniting a fire. The potential for these impacts will be reduced to a less than significant level through implementation of the following mitigation measures:

- 1) The contractor shall have dependable radio or phone communication on-site to be able to report any accidents or fire that might occur.
- 2) Heavy equipment that will be used in these activities will be in good condition and will be inspected for leakage of coolant and petroleum products and repaired, if necessary, before work is started.
- 3) Work with heavy equipment will be performed in isolation from flowing water, except as may be necessary to construct coffer dams to divert stream flow and isolate the work site.
- 4) All equipment operators will be trained in the procedures to be taken should an accident occur. Prior to the onset of work, DFG shall ensure that the contractor has prepared a plan to allow a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- 5) All activities performed in or near a stream will have absorbent materials designed for spill containment and cleanup at the activity site for use in case of an accidental spill.
- 6) All fueling and maintenance of vehicles and other equipment shall be located at least 20 meters from any riparian habitat or water body. The contractor shall ensure contamination of habitat does not occur during such operations.
- 7) Location of staging/storage areas for equipment, materials, fuels, lubricants, and solvents, will be located outside of the stream's high water channel and associated riparian area. The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the restoration action. To avoid contamination of habitat during restoration activities, trash will be contained, removed and disposed of throughout the project.
- 8) Stationary equipment such as motors, pumps, generators, compressors, and welders, located within the dry portion of the stream channel or adjacent to the stream, will be positioned over drip-pans.
- 9) All internal combustion engines shall be fitted with spark arrestors.
- 10) The contractor shall have an appropriate fire extinguisher(s) and fire fighting tools (shovel and axe at a minimum) present at all times when there is a risk of fire.
- 11) Vehicles shall not be parked in tall grass or any other location where heat from the exhaust system could ignite a fire.

- 12) The contractor shall follow any additional rules the landowner has for fire prevention.

The potential for mercury contamination is largely predicted by the presence of historic hydraulic gold mines and mercury (cinnabar) mines (California's Abandoned Mines: A Report on the Magnitude and Scope of the Issue in the State, DOC 2000). Therefore, only a few limited areas within the geographic scope of this grant program have any potential for gravels contaminated with elemental mercury, they are: Middle Klamath River, Salmon River, Scott River, and the Lower Middle and Upper Trinity River. (Though studies by the USGS failed to find significant levels of methyl mercury near these mines.) The only other mercury mine contamination within the FRGP-area is in Marin County (Walker Creek), and this contamination is not in instream gravels or dredger tailings, instead it is from the bedrock; and therefore, not easily methylized, and not as bio-available.

Given the limited geographical potential for encountering mercury contamination (from historic mining) within the geographic scope, and the limited number of projects within these areas that will either disturb the channel bottom or import gravels for instream restoration; the following avoidance and mitigation measure will be adhered to:

- 1) Any gravel imported from offsite will be from a source known to not contain historic hydraulic gold mine tailings, dredger tailings, or mercury mine waste or tailings.

VIII. HYDROLOGY AND WATER QUALITY

- 1) Work shall be conducted during the period of lowest flow.
- 2) Work shall be performed in isolation from flowing water. If there is any flow when the work is done, the contractor shall construct coffer dams upstream and downstream of the excavation site and divert all flow from upstream of the upstream dam to downstream of the downstream dam. The coffer dams may be constructed with clean river gravel or sand bags, and may be sealed with sheet plastic. Sand bags and any sheet plastic shall be removed from the stream upon project completion. Clean river gravel may be left in the stream, but the coffer dams must be breached to return the stream flow to its natural channel.
- 3) For minor actions, where the disturbance to construct coffer dams to isolate the work site would be greater than to complete the action (for example, placement of a single boulder cluster), then measures will be put in place immediately downstream of the work site to capture suspended sediment. This may include installation of silt catchment fences across the stream, or

placement of filter berm of clean river gravel. Silt fences and other non-native materials will be removed from the stream following completion of the activity. Gravel berms may be left in place after breaching, provided they do not impede the stream flow.

- 4) Before work is allowed to proceed at a site, DFG will inspect the site to assure that turbidity control measures are in place.

X. MINERAL RESOURCES

No specific mitigation measures are required for mineral resources.

XI. NOISE

Personnel shall wear hearing protection while operating or working near noisy equipment (producing noise levels ≥ 85 db, including chain saws, excavators and back hoes).

XII. POPULATION AND HOUSING

No specific mitigation measures are required for population and housing.

XIII. PUBLIC SERVICES

No specific mitigation measures are required for public services.

XIV. RECREATION

No specific mitigation measures are required for recreation.

XV. TRANSPORTATION/TRAFFIC

The project will not affect transportation/traffic, because erosion control and culvert replacement projects will occur in wildland/rural sites with very little use. There is a potential that culvert replacement at some work sites could temporarily interfere with emergency access. This potential impact will be avoided through implementation of the following mitigation measure at any sites where emergency access might be necessary:

- 1) During excavation for culvert replacement, the contractor shall provide a route for traffic around or through the construction site.

XVI. UTILITIES AND SERVICE SYSTEMS

No specific mitigation measures are required for utilities and service systems.

MONITORING AND REPORTING

- 1) DFG Contract Manager will inspect the work site before, during, and after completion of the action item, to ensure that all necessary mitigation measures to avoid impacts are properly implemented.
- 2) DFG shall perform implementation monitoring on all completed restoration activities annually, as described in the *California Coastal Salmonid Restoration Monitoring and Evaluation Program* or the latest version of the *California Salmonid Stream Habitat Restoration Manual*, Part VIII. DFG will submit a copy of the final report, no later than March 1 annually to NOAA Fisheries.
- 3) DFG shall perform effectiveness and validation monitoring on 10 percent annually of completed restoration projects as described in the *California Coastal Salmonid Restoration Monitoring and Evaluation Program* or the latest version of the *California Salmonid Stream Habitat Restoration Manual*, Part VIII. DFG will submit a copy of the final report, no later than March 1 annually to NOAA Fisheries.
- 4) An annual report shall be submitted to NOAA Fisheries by March 1 of each year, which provides a summary of all restoration action items completed during the previous year. The annual report shall include a summary of the specific type and location of each project, stratified by individual project, 4th field HUC and ESU. The report shall include the following project-specific summaries, stratified at the individual project, 4th field Huc and ESU level:
 - a) A summary detailing fish relocation activities, including the number and species of fish relocated and the number and species injured or killed.
 - b) The number and type of instream structures implemented within the stream channel.
 - c) The length of stream bank (feet) stabilized or planted with riparian species.
 - d) The number of culverts replaced or repaired, including the number of miles or restored access to unoccupied salmonid habitat.
 - e) The distance (miles) of road decommissioned.
 - f) The distance (feet) of aquatic habitat disturbed at each project site.

- 5) DFG and NOAA Fisheries staff will meet annually to coordinate on monitoring requirements. The purpose of the meeting is to facilitate prioritization of ongoing, proposed, and future monitoring efforts, and ensure these efforts meet the requirements of the biological opinion and are achievable.
- 6) For Alameda, Contra Costa, Lake, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma counties, DFG must submit an annual report due by January 31 of each year of implemented projects to the US Fish and Wildlife Service Office, 2800 Cottage Way, Sacramento, California 95825. The report must include:
 - a) A table documenting the number of California freshwater shrimp or red-legged frogs killed, injured, and handled during each Program project that utilizes the Corps authorization.
 - b) A summary of how the terms and conditions of this biological opinion and the protective measures by the Corps and DFG worked.
 - c) Any suggestions of how these measures could be revised to improve conservation of this species while facilitating compliance with the Act.
- 7) For Monterey, San Benito, San Luis Obispo, and Santa Cruz counties, DFG must submit an annual report due by January 31 of each year of implemented projects to the US Fish and Wildlife Service Office, 2493 Portola Road, Suite B, Ventura, California 93003. The report must include:
 - a) A table documenting the number of red-legged frogs killed, injured, and handled during each Program project that utilizes the Corps authorization.
 - b) A summary of how the terms and conditions of this biological opinion and the protective measures by the Corps and DFG worked.
 - c) Any suggestions of how these measures could be revised to improve conservation of this species while facilitating compliance with the Act.
- 8) DFG will submit annual reports on July 1 of each year to the 401 Program Managers of the State Water Resources Control Board and the appropriate RWQCB(s) documenting work undertaken during the preceding year and identifying for all such work the following:
 - a) Project name and grant number;
 - b) Project purpose and summary work description;
 - c) Name(s) of affected water body(ies);
 - d) Latitude/longitude in decimal degrees to at least four decimals;;
 - e) Type(s) of receiving water body(ies);

- f) For each water body type affected, the quantity of waters of the U.S. temporarily and permanently impacted. Fill/excavation discharges shall be reported in acres and fill/excavations discharges for channels, shorelines, riparian corridors, and other linear habitat shall also be reported in linear feet;
 - g) Actual construction start and end-dates;
 - h) Whether the project is on-going or completed.
- 9) DFG shall report any previously unknown historic archeological and paleontological remains discovered at a site to the U. S. Army Corps of Engineers as required in the Regional General Permit.